Trend Study 9-3-00

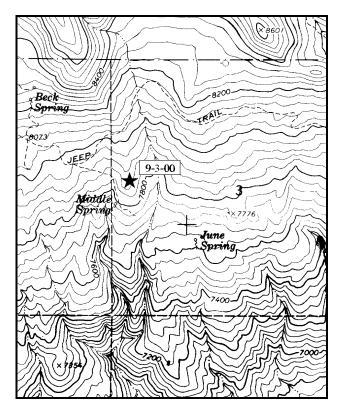
Study site name: <u>Dry Fork Mountain</u>. Range type: <u>Big Sagebrush-Grass</u>.

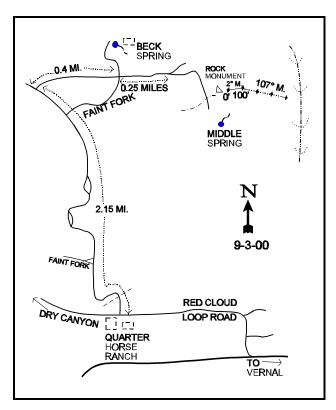
Compass bearing: frequency baseline 83°M.

First frame placement on frequency belts <u>5</u> feet. Frequency belt placement; line 1 (18 & 81ft), line 2 (33ft), line 3 (66ft), line 4 (79ft).

LOCATION DESCRIPTION

From Vernal, proceed west on 500 North to 3500 West. Turn right and go up Dry Fork 8.5 miles to the Red Cloud Loop Road. Bear right onto this road and continue up Dry Fork Canyon 1.7 miles to a horse ranch on the left. North across the road from the ranch is a dirt road. Turn right onto this road, go through the gate and go 2.15 miles to a fork. Bear right and proceed 0.4 miles to an intersection. Continue straight for 0.25 miles to a faint turnoff on the right. Turn right and drive across the meadow toward Middle Spring. Go 0.2 miles to the base of the hill just before Middle Spring. Walk to the highest point on the hill. There is a rock monument on top. From the monument, the 0-foot baseline stake is 12 paces away bearing 90°M.





Map Name: Dry Fork

Township <u>3S</u>, Range <u>20E</u>, Section <u>3</u>

Diagrammatic Sketch

UTM 4493391.447 N, 612469.698 E

DISCUSSION

Trend Study No. 9-3 (11-4)

The <u>Dry Fork Mountain</u> study is on Dry Fork Mountain near Middle Spring at an elevation of 7,800 feet. The area is a sagebrush-grass type and is administered by the BLM. The site has an average slope of 13% and a southeast aspect. The sagebrush slopes on the south face of Dry Fork Mountain provide important big game winter range. This area is grazed from June 1 to September 15 (470 AUM's). A pellet group transect read along the baseline in 2000 estimates moderate use of the site by deer with 68 deer days use/acre (167 ddu/ha). Use by elk is light with 3 elk days use/acre (8 edu/ha). Cattle use was also light with 7 cow days use/acre (16 cdu/ha) estimated when the site was read in mid-July 2000.

The soil is a coarse sandy loam that is shallow, rocky, and well drained. Estimated effective rooting depth is just over 7 inches and average soil temperature is moderately high for this elevation at nearly 72° F. A stoniness profile index shows nearly 80% of the penetrometer readings to be within the upper 4 inches of the soil profile. Soil reactivity is slightly acidic (pH of 6.1). Erosion and soil movement are minimal due to the excellent and well dispersed vegetation and litter cover.

Key browse for the site are mountain big sagebrush and antelope bitterbrush. Sagebrush accounted for 61% and 56% of the total browse cover in 1995 and 2000 respectively, while bitterbrush made up 29% and 31% of the browse cover for the same years. Sagebrush cover is currently ('00) estimated at about 22% with an estimated density of 2,720 plants/acre. Vigor is currently good and use is light to moderate. Percent decadency slightly increased from 11% in 1995 to 18% in 2000. This level is still much lower than the 42% estimated in 1988. The current level of decadence is not excessive for sagebrush especially during a period of extended drought. Recruitment is currently ('00) moderate at 7% (200 plants/acre) and fairly steady over the past three readings. Sagebrush on the site is vigorous with good leader growth and seed production.

Antelope bitterbrush is not as abundant as sagebrush, but is more preferred and shows heavier use. Bitterbrush density was estimated at 1,399 plants/acre in 1988, increasing to 1,960 in 1995, and 1,880 in 2000. During the 1988 reading, all bitterbrush sampled displayed heavy hedging. Heavy use has declined somewhat since then to 58% and 62% respectively in 1995 and 2000. Even with this heavy use, vigor remains good over all years. Percent decadency increased from 4% in 1995 to 14% in 2000. Bitterbrush on the site display a prostrate growth form, averaging only 20 inches in height. Recruitment from young plants is currently good at 14%. Annual growth on bitterbrush is minimal in 2000 averaging less than 1 inch throughout the site.

Other browse encountered on the site include: pricklypear cactus, mountain low rabbitbrush, broom snakeweed, Oregon grape, wax current and snowberry. Pricklypear is increasing over the site and is currently estimated at 6,060 plants/acre. This represents the largest negative factor facing the browse component on Dry Fork Mountain.

The herbaceous understory is dominated by perennial grasses which accounted for 28% of the total vegetation cover in 1995, increasing to 39% in 2000. Sum of nested frequency of perennial grasses remained the same between 1995 and 2000. The relatively high sagebrush cover at this site does not appear to be suppressing the understory as of yet. Needle-and-thread is by far the most abundant grass, followed by two wheatgrass species, thickspike and bluebunch. Annual cheatgrass was fairly common in 1995, being sampled in 49% of the quadrats. However, with the dry conditions in 2000, cheatgrass occurred in only 1 quadrat. Forbs are diverse but were dominated by annuals in 1995. Annual forbs were nearly non-existent in 2000 with drought. Perennial forb species decreased in sum of nested frequency. The most abundant perennial forbs are scarlet globemallow and redroot eriogonum.

1982 APPARENT TREND ASSESSMENT

Soil trend appears stable with adequate ground cover and little soil movement. Vegetative trend appears stable to declining. The preferred species, antelope bitterbrush, occurs in less than optimum numbers and does not appear to be increasing. The key species, Mountain big sagebrush, currently dominates the site. The most obvious indicator of declining trend is the apparent increase of prickly pear. Grasses are in fair to good condition, although a moderately palatable increaser (i.e. needle-and-thread) is quite abundant. Forbs are much less important and composition consists largely of scarlet globemallow.

1988 TREND ASSESSMENT

A small increase was noted in the percentage of vegetative basal cover found in 1988, but the significant changes in ground cover occurred in the loss of cryptogams, increase of rock on the soil surface, and a decline in percent bare ground. The loose soil is well protected by the dense shrub overstory and runoff is localized. Trend for soil is up slightly. The browse trend is slightly up for bitterbrush, but heavy use of this shrub should be watched closely. Mountain big sagebrush densities have also increased but so has percent decadence now at 42%. Trend for sagebrush is stable. One negative aspect of the browse trend is the large increase in pricklypear cactus. Age class analysis indicates 68% of the population consists of young plants. Trend for the herbaceous understory is up for grasses and stable for forbs.

TREND ASSESSMENT

soil - slightly up (4)

browse - stable for sagebrush and slightly up for bitterbrush (3)

herbaceous understory - up (5)

1995 TREND ASSESSMENT

Ground cover characteristics have improved since 1988 with percent rock cover declining to near 1982 levels, along with a further decline in bare ground now at only 2%. Trend for soil is slightly up. The preferred browse species, bitterbrush, displays an upward trend with an increase in density and decline in the proportion of shrubs being heavily browsed. Percent decadence has remained low at 4%. The key browse species, mountain big sagebrush, also shows an improving trend with a decline in percent decadence and an increase in density. An additional improvement in the browse composition is the decline in prickly pear cactus. Trend for the herbaceous understory is slightly up with an increase in sum of nested frequency of perennial grasses and forbs. It appears that thickspike wheatgrass (*Agropyron dasystachyum*) was misidentified and combined with bluebunch wheatgrass in 1988.

TREND ASSESSMENT

<u>soil</u> - slightly up and in excellent condition (4) <u>browse</u> - slightly up (4) <u>herbaceous understory</u> - slightly up (4)

2000 TREND ASSESSMENT

Trend for soil is stable. Bare ground remains low and protective ground cover from vegetation and litter are abundant and well dispersed. Erosion is minimal as a result. Trend for browse is stable. Bitterbrush increased in decadency, but vigor remains good while use has remained about the same as the 1995 level. Recruitment is also good at 14%. Mountain big sagebrush also increased in decadency (11% to 18%), but this level is not excessive for sagebrush. Vigor remains mostly good and use is mostly light. Annual leader growth and seed production are both good for sagebrush and recruitment is adequate at 7%. The increase in pricklypear cactus is

the main negative factor for the browse component at this site. Trend for the herbaceous understory is stable. Sum of nested frequency for perennial grasses stayed the same, while perennial forbs slightly decreased due to drought. However, the forbs only contribute to about 1% total cover.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

<u>herbaceous understory</u> - stable (3)

HERBACEOUS TRENDS --

T y	ord unit 09, Study no: 3 Species	Nested	Freque	ncy	Quadra	at Frequ	ency		Average Cover %	
p e		'88	'95	'00	'82	'88	'95	'00'	'95	'00
G	Agropyron dasystachyum	a ⁻	_b 73	_b 97	57	-	26	36	1.35	2.73
G	Agropyron spicatum	_c 212	_b 86	_a 36	2	72	29	15	3.33	1.73
G	Bromus tectorum (a)	-	ь138	_a 1	-	-	49	1	2.91	.00
G	Carex spp.	6	17	16	3	3	7	6	.37	.48
G	Oryzopsis hymenoides	1	5	-	-	1	2	-	.06	-
G	Poa fendleriana	_{ab} 9	_a 8	_b 30	1	5	3	12	.16	.43
G	Poa pratensis	a ⁻	_b 7	_c 60	-	-	4	17	.31	5.63
G	Sitanion hystrix	_b 55	_{ab} 36	_a 22	5	24	16	8	.21	.34
G	Stipa comata	_a 121	_b 234	_b 207	54	47	78	67	11.03	14.64
G	Stipa lettermani	-	6	4	-	-	2	1	.06	.15
G	Unknown grass - perennial	ь10	a-	a ⁻	-	3	-	-	-	-
Т	otal for Annual Grasses	0	138	1	0	0	49	1	2.91	0.00
T	otal for Perennial Grasses	414	472	472	122	155	167	162	16.90	26.15
Т	otal for Grasses	414	610	473	122	155	216	163	19.81	26.15
F	Antennaria rosea	-	-	-	1	-	-	1	-	-
F	Arabis spp.	-	3	ı	-	-	2	ı	.01	-
F	Arenaria congesta	-	-	-	1	-	-	-	-	-
F	Astragalus convallarius	a-	_b 9	_b 7	-	-	4	3	.02	.06
F	Calochortus nuttallii	8	_b 9	a ⁻	1	4	4	-	.02	-
F	Collomia linearis (a)	-	ь152	_a 5	-	-	57	3	1.64	.01
F	Collinsia parviflora (a)	-	_b 58	_a 6	-	-	27	3	.33	.01
F	Cryptantha spp.	3	9	2	-	2	4	1	.07	.03
F	Cymopterus longipes	-	7	11	-	-	3	5	.01	.12
F	Descurainia pinnata (a)	-	1	-	-	-	1	-	.00	_
F	Eriogonum racemosum	_a 2	_b 13	_{ab} 12	1	1	6	6	.10	.15
F	Heterotheca villosa	1	-	5	2	1	_	2	-	.01

T y p	Species	Nested	Freque	ncy					Average Cover %			
e		'88	'95	'00	'82	'88	'95	'00	'95	'00		
F	Hymenoxys acaulis	-	1	3	-	-	1	1	.00	.15		
F	Lactuca serriola	-	3	1	-	-	1	-	.00	-		
F	Lepidium spp. (a)	_	2	1	-	-	2	_	.01	_		
F	Lithospermum spp.	a ⁻	ь6	a ⁻	-	-	3	-	.16	.03		
F	Lupinus argenteus	a ⁻	ь7	ь6	-	-	4	4	.12	.24		
F	Machaeranthera canescens	-	3	1	-	-	2	-	.01	-		
F	Orobanche fasciculata	a-	_{ab} 2	_b 5	-	-	1	4	.00	.07		
F	Penstemon humilis	2	3	3	2	1	1	1	.03	.03		
F	Phlox longifolia	-	-	1	-	-	-	1	-	.00		
F	Polygonum douglasii (a)	-	_b 28	_a 2	-	-	13	1	.06	.00		
F	Sphaeralcea coccinea	_a 6	_b 31	_a 15	16	3	13	7	.36	.13		
F	Tragopogon dubius	-	6	7	-	-	3	4	.04	.04		
F	Zigadenus elegans	-	14	6	-	-	5	3	.03	.09		
T	otal for Annual Forbs	0	241	13	0	0	100	7	2.05	0.03		
Т	otal for Perennial Forbs	22	126	83	14	12	57	42	1.02	1.18		
T	otal for Forbs	22	367	96	14	12	157	49	3.08	1.21		

Values with different subscript letters are significantly different at % = 0.10

BROWSE TRENDS --

T y p	Species	Strip Frequer	ncy	Average Cover %	
e		'95	'00	'95	'00
В	Artemisia tridentata vaseyana	76	70	22.85	21.93
В	Chrysothamnus viscidiflorus lanceolatus	4	2	.06	.15
В	Gutierrezia sarothrae	4	1	.00	-
В	Mahonia repens	1	2	-	-
В	Opuntia fragilis	77	82	2.83	4.13
В	Pediocactus simpsonii	1	0	-	-
В	Purshia tridentata	65	71	10.91	12.03
В	Symphoricarpos oreophilus	3	3	.56	.91
To	otal for Browse	231	231	37.22	39.16

BASIC COVER --

Herd unit 09, Study no: 3

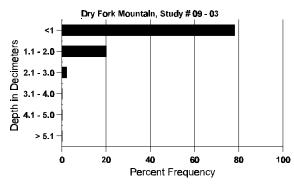
Cover Type	Nested Frequen	су	Average Cover %						
	'95	'00	'82	'88	'95	'00			
Vegetation	353	347	4.00	6.50	58.21	64.25			
Rock	211	179	9.50	17.00	9.85	13.81			
Pavement	43	62	1.25	.50	.33	1.34			
Litter	396	390	68.75	69.75	67.73	66.24			
Cryptogams	7	10	4.25	0	.04	.22			
Bare Ground	67	78	12.25	6.25	2.08	4.22			

SOIL ANALYSIS DATA --

Herd Unit 09, Study # 3, Study Name: Dry Fork Mountain

Effective rooting depth (inches)	Temp °F (depth)	pН	%sand	%silt	%clay	%0M	РРМ Р	РРМ К	dS/m
7.18	71.6 (8.27)	6.1	64.6	15.8	16.6	5.3	29.9	124.8	0.5

Stoniness Index



PELLET GROUP FREQUENCY --

Type	Quadra Freque	
	'95	'00
Rabbit	9	5
Elk	6	-
Deer	30	17
Cattle	2	-

Pellet T	ransect
Pellet Groups per Acre	Days Use per Acre (ha)
'00	'00
792	N/A
44	3 (8)
879	68 (167)
78	7 (16)

BROWSE CHARACTERISTICS --

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A G	Y R	Form Cl	ass (N	No. of l	Plants)					Vigor C	lass			Plants Per Acre	Average (inches)	Total
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A G	Y R	Form C	lass (I	No. of	Plants)				,	Vigor C	lass			Plants Per Acre	Average (inches)	Total
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	95	2	5	1	-	4	1	-	-	-	13	-	-	-	260		13
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			,		-								'88	3	0		-
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		Form Class (No. of Plants)										Vigor Class			Plants	Average		Total
E	R	1	2	3	4	5	6	7	8	9	1	2	3	4	Per Acre	(inches) Ht. Cr.		
Symphoricarpos oreophilus																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		-	0
	88	-	1	-	-	-	-	-	-	-	1	-	-	-	66	13	9	1
	95	3	-	-	-	-	-	-	-	-	3	-	-	-	60	14	27	3
	00	4	-	-	-	-	-	-	-	-	4	-	-	-	80	12	31	4
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T	otal I	Plants/A	cre (ex	cludir	ng Des	2 & he	eedlir			'82		0	Dec:		_			
Total Plants/Acre (excluding Dead & Seedlings)											'88		66	Dec.		_		
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													'00		80			-